IN THE CLAIMS

Please cancel claims 8-26 and 34-40 without prejudice.

Please amend claims 1 and 27 as indicated below.

Please add new claims 41-58 as indicated below.

1. (Currently Amended) A method for controlling admittance of a data packet into a memory buffer, the method comprising:

performing, prior to queuing the data packet for routing by a processor, the following:

receiving a data packet from one of at least two different ports;

determining a priority value within the data packet; ~~and~~

determining an admittance group identifier for the data packet based on the priority value and the port the data packet was received; and

admitting the data packet into the memory buffer associated with a group identified by the determined admittance group identifier; and

queuing the data packet from the memory buffer to one of a number of queues for routing by the processor upon determining that a number of data packets stored in the memory buffer and having the admittance group identifier is not greater than a threshold value associated with the determined admittance group identifier.

2. (Original) The method of claim 1, further comprising discarding the data packet upon determining that the number of data packets stored in the memory buffer and having the admittance group identifier is greater than the threshold value.

3. (Original) The method of claim 1, wherein determining the priority value within the data packet is based on classifying the data packet as one of a number of packet formats.

4. (Original) The method of claim 3, wherein classifying the data packet received from one of the at least two different ports comprises classifying the data packet using instructions in a number of instruction streams, wherein each of the number of instruction streams are associated with one of the number of packet formats.

5. (Original) The method of claim 4, wherein the number of packet formats are selected from the group consisting of Internet Protocol and Ethernet.

6. (Original) The method of claim 1, wherein determining the admittance group identifier includes traversing a table of admittance group identifiers based on the priority value and the port that the data packet was received from.

7. (Original) The method of claim 6, further comprising selectively outputting the data packets from the memory buffer through the number of queues based on the admittance group identifier.

8. – 26. (Canceled)

27. (Currently Amended) A machine-readable medium that provides instructions for controlling admittance of a data packet into a memory buffer, which when executed by a machine, causes the machine to perform operations comprising:

performing, prior to queuing the data packet for routing by a processor, the following:

receiving a data packet from one of at least two different ports;

determining a priority value within the data packet; ~~and~~

determining an admittance group identifier for the data packet based on the priority value and the port the data packet was received; and

admitting the data packet into the memory buffer associated with a group identified by the determined admittance group identifier; and

queuing the data packet from the memory buffer to one of a number of queues for routing by the processor upon determining that a number of data packets stored in the memory buffer and having the admittance group identifier is not greater than a threshold value associated with the determined admittance group identifier.

28. (Original) The machine-readable medium of claim 27, further comprising discarding the data packet upon determining that the number of data packets stored in the memory buffer and having the admittance group identifier is greater than the threshold value.

29. (Original) The machine-readable medium of claim 27, wherein determining the priority value within the data packet is based on classifying the data packet as one of a number of packet formats.

30. (Original) The machine-readable medium of claim 29, wherein classifying the data packet received from one of the at least two different ports comprises classifying the data packet using instructions in a number of instruction streams, wherein each of the number of instruction streams are associated with one of the number of packet formats.

31. (Original) The machine-readable medium of claim 30, wherein the number of packet formats are selected from the group consisting of Internet Protocol and Ethernet.

32. (Original) The machine-readable medium of claim 27, wherein determining the admittance group identifier includes traversing a table of admittance group identifiers based on the priority value and the port that the data packet was received from.

33. (Original) The machine-readable medium of claim 32, further comprising selectively outputting the data packets from the memory buffer through the number of queues based on the admittance group identifier.

34. – 40. (Canceled)

41. (New) The method of claim 1, wherein the data packet is admitted into the memory buffer if a number of data packets within a group identified by the admittance group identifier that are already admitted into the memory buffer does not exceed the threshold value associated with the respective group.

42. (New) The method of claim 2, wherein data packets of each group admitted into the memory buffer are limited to a predetermined maximum number of packets associated with each group, and wherein subsequent additional data packets are discarded if the associated group contains the predetermined maximum number of packets.

43. (New) The method of claim 42, wherein data packets of each group admitted do not exceed the predetermined maximum number of packets associated with the respective group before being queued into one of the queues and processed by the processor for routing of the respective group.

44. (New) The method of claim 4, wherein each instruction comprises a first portion having an operation code and a second portion having a target result of an operation associated with the operation code, wherein for at least one byte of each data packet, the method further comprises applying each instruction of each instruction stream by

performing on the respective byte an operation indicated in the operation code of the first portion of the respective instruction, and

comparing a result of the operation with the target result indicated in the second portion of the respective instruction to determine a format of the respective data packet.

45. (New) The method of claim 44, wherein the determined format of the data packet is used to determine a priority of the data packet, which is used to determine a group of data packets of which the data packet belongs.

46. (New) The method of claim 44, wherein each instruction further comprises a third portion having an offset of the data packet from which the at least one byte is applied, wherein the operation is performed on the at least one byte located from an offset indicated by the third portion of the respective instruction.

47. (New) The method of claim 46, wherein each instruction further comprises a fourth portion having a mask associated with the at least one byte indicated by the third portion to indicate which portion of the at least one byte is relevant.

48. (New) The method of claim 47, further comprising masking the at least one byte using the mask of the respective instruction before performing the operation indicated by the operation code of the instruction.

49. (New) The machine-readable medium of claim 27, wherein the data packet is admitted into the memory buffer if a number of data packets within a group identified by the admittance group identifier that are already admitted into the memory buffer does not exceed the threshold value associated with the respective group.

50. (New) The machine-readable medium of claim 28, wherein data packets of each group admitted into the memory buffer are limited to a predetermined maximum number of packets associated with each group, and wherein subsequent additional data packets are discarded if the associated group contains the predetermined maximum number of packets.

51. (New) The machine-readable medium of claim 50, wherein data packets of each group admitted do not exceed the predetermined maximum number of packets associated with the respective group before being queued into one of the queues and processed by the processor for routing of the respective group.

52. (New) The machine-readable medium of claim 30, wherein each instruction comprises a first portion having an operation code and a second portion having a target result of an operation associated with the operation code, wherein for at least one byte of each data packet, the operations further comprise applying each instruction of each instruction stream by

performing on the respective byte an operation indicated in the operation code of the first portion of the respective instruction, and

comparing a result of the operation with the target result indicated in the second portion of the respective instruction to determine a format of the respective data packet.

53. (New) The machine-readable medium of claim 52, wherein the determined format of the data packet is used to determine a priority of the data packet, which is used to determine a group of data packets of which the data packet belongs.

54. (New) The machine-readable medium of claim 52, wherein each instruction further comprises a third portion having an offset of the data packet from which the at least one byte is applied, wherein the operation is performed on the at least one byte located from an offset indicated by the third portion of the respective instruction.

55. (New) The machine-readable medium of claim 54, wherein each instruction further comprises a fourth portion having a mask associated with the at least one byte indicated by the third portion to indicate which portion of the at least one byte is relevant.

56. (New) The machine-readable medium of claim 55, wherein the operartions further comprise masking the at least one byte using the mask of the respective instruction before performing the operation indicated by the operation code of the instruction.

57. (New) A network element, comprising:

a processor; and

a memory coupled to the processor for storing instructions, when executed from the memory, cause the processor to

perform, prior to queuing the data packet for routing by the processor, the following:

receiving a data packet from one of at least two different ports,

determining a priority value within the data packet,

determining an admittance group identifier for the data packet based on the priority value and the port the data packet was received, and

admitting the data packet into the memory buffer associated with a group identified by the determined admittance group identifier, and

queue the data packet from the memory buffer to one of a number of queues for routing by the processor upon determining that a number of data packets stored in the memory buffer and having the admittance group identifier is

not greater than a threshold value associated with the determined admittance group identifier.

58. (New) An apparatus, comprising:

means for performing, prior to queuing the data packet for routing by the processor, the following:

receiving a data packet from one of at least two different ports,

determining a priority value within the data packet,

determining an admittance group identifier for the data packet based on the priority value and the port the data packet was received, and

admitting the data packet into the memory buffer associated with a group identified by the determined admittance group identifier; and

means for queuing the data packet from the memory buffer to one of a number of queues for routing by the processor upon determining that a number of data packets stored in the memory buffer and having the admittance group identifier is not greater than a threshold value associated with the determined admittance group identifier.